

Machinery and Appliances.

THE DOBCROSS LOOM.

MESSRS. HUTCHINSON, HOLLINGWORTH, AND Co., DOBCROSS LOOM WORKS, NEAR OLDHAM.

We notice with pleasure a new loom of Messrs. Hutchinson and Hollingworth, which they have lately presented to the Huddersfield Technical School, containing all their latest improvements. We have been afforded the opportunity of seeing this loom at work and noting its many features of excellence. The firm is well known in all weaving districts, but more particularly in the woollen and worsted centres of Huddersfield, Colne Valley, Leeds, Dewsbury, Bradford, Galashiels, and Hawick, and has long enjoyed a well-deserved reputation for looms for weaving fancy woollens, worsteds, shawls, and carpets. For many years

shaft, on to which bevel is keyed an eccentric wheel gearing, with a similar eccentric wheel keyed on the crank shaft.

In this way an eccentric motion is imparted to the going-part or batten of the loom, very useful in a broad loom for increasing the dwell to allow for the passage of the shuttle through the shed.

By the use of the extra counter-shaft to carry the driving pulleys, any unevenness in the running is, to some extent, neutralised, being communicated indirectly through bevel and spur wheels, not directly, as in most cases, when the pulleys are mounted on the crank-shaft itself.

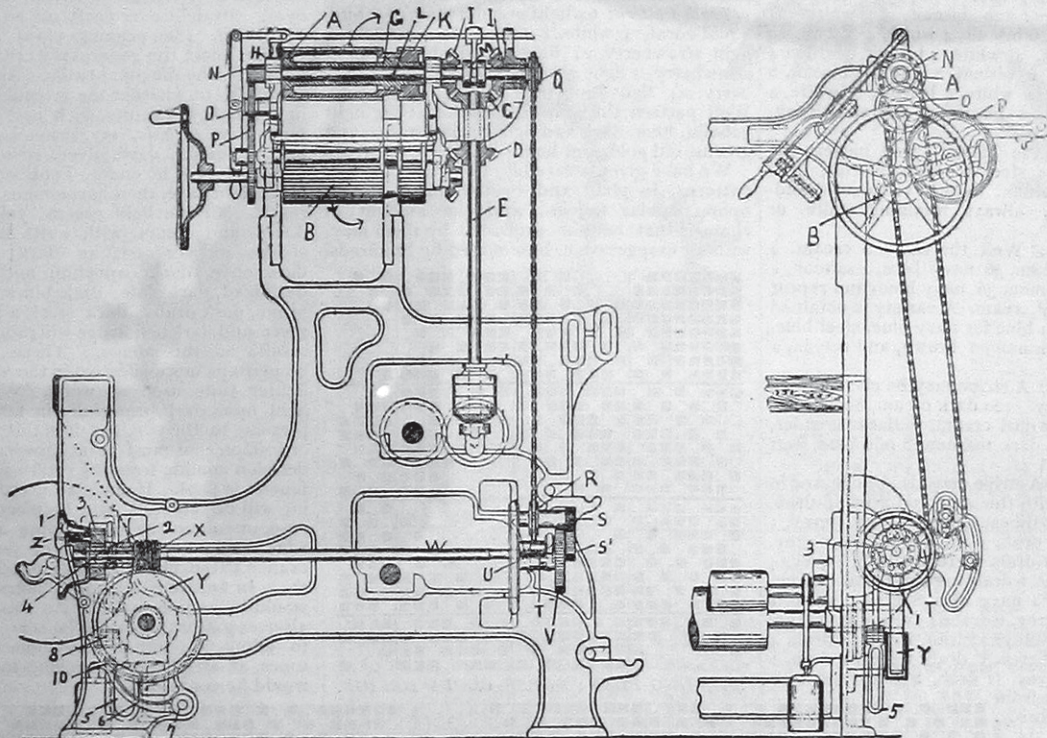
Again, by means of change wheels, the driving may be altered as to speed in a few moments—a very important item in the exigencies of the woollen and worsted trades.

The looms may be fitted up with friction driving if so required, which is particularly well adapted to this class of loom.

The jacquard or dobbie works the healds, the boxes on each side of the loom, and also indicates

sary to reverse the pattern chain to pick back, the cloth is at the same time reversed by means of the take-up motion. Consequently, after picking back, the weaver has simply to wind back the amount of warp slackened, the adjustment having already been regulated to a nicety by the take-up motion.

The motion communicated to the healds and boxes through jacks, levers, cords, etc., is obtained by the revolution of a toothed disc to left or right on its own centre. The centre is in a lever, which is indicated by the pattern chain to lift or drop the vibrating disc into a top or bottom toothed cylinder. The cylinders are driven in contrary directions by two opposite bevel wheels on the upright shaft before mentioned. Suitable connecting levers, pivoted at one end to the jacks and at the other to a point about an inch within the periphery of the revolving disc, communicate, and at the same time convert the half-circular motion of the disc into a horizontal motion of an eccentric character, which imparts to the healds a motion commencing slowly when the heald is at full stroke,



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previous to 1883 their attention was confined to the making of the old, slow, Dobcross loom, running at a speed of 45 to 50 picks per minute. Since that time they have devoted their attention to the production of a loom to run at about 80 picks per minute, and to weave all kinds of fancy worsteds and woollens up to 36 shafts of healds, with one to seven different colours of weft. They have so far succeeded that the loom which they can put upon the market today fully sustains their old reputation, and is rapidly displacing the older patterns in all enterprising establishments. This loom was originally made from patterns obtained from the Knowles Manufacturing Co., of the United States, but has been so much improved upon, by strengthening the machine throughout, by adding new motions, and adapting old ones, that it can scarcely be recognised as the same.

The driving is effected by means of a belt and fast and loose pulley, mounted upon a small counter shaft, which gears by means of a bevel change wheel (for altering the speed of the loom) into a bevel wheel upon the picking

for the picking. It is driven by a train of spur and bevel wheels from the crank shaft, which may be thrown out of gear by drawing a connecting pin fastened to a hand lever passing to the front of the loom, and immediately under the control of the weaver. This part of the loom may be worked by hand from a large hand-wheel projecting at the front, and also well under the weaver's control. By this means mispicks, broken picks, or other faults may be easily remedied by bringing the loom to a stand, disconnecting the jacquard portion by drawing the lever before mentioned, and operating healds and bones by hand. The pattern chain may be reversed by drawing a reversing lever or knob, and the various sheds obtained in reverse order for the withdrawal of picks.

A new feature of this machine is a positive take-up motion similar in principle to those already in use, but somewhat different in detail, owing to the fact of its being driven from the pattern chain shaft. The result of this is that whenever the weaver finds it neces-

increasing gradually towards the centre of the stroke, and decreasing gradually again until at the other extremity. The shed is of that variety known as open-shed. A levelling lever is provided, by means of which all the healds may be brought to one level to facilitate taking up ends. This shedding motion has now stood the test of several years' practical work, and has been found durable, impossible almost to make wrong treads, very smooth in working, and causing the least possible extra strain upon the warp. It is not liable to get out of order, and is very much in favour among weavers because of the readiness in picking back, and the certainty that the boxes can never get out of harmony with the healds. In addition, being open-shed, it causes the least possible wear and tear of healds, cords, and leathers. The shuttle boxes, although taking a large shuttle, are made very light, of steel throughout, and work very true in planed grooves. They are also made open top and bottom, so that bobbins in the lower boxes may be seen through the top.

The stop rod is of the ordinary "banger" description, but is provided with a stout spring buffer to reduce to some extent the excessive momentum.

The picking motion is peculiar to this class of loom. It is an underpick, and consists of a square, wrought-iron, horizontal rocking-shaft, upon which the picking shaft—one only being in gear, as indicated by the pattern chain.

The let-off motion is the one usually adopted in looms for this class of goods, viz.: the worm and worm wheel, with compensating back rests fitted up with levers and weights.

These features, all excellent in themselves, are well supported by thorough workmanship and first-class material. The joints are all planed, many of the parts, particularly in the harness, are of steel, the working part case-hardened. The gear wheels are not cast, but cut from the solid, and the whole is got up in a very attractive manner.

The parts are all interchangeable, and made true to standard jigs and gauges. The requirements of the trade have been carefully studied, and nothing in trouble and expense has been spared to make this machine a source of satisfaction to owner and maker alike.

"A REVOLUTION IN COTTON GINNING."—By an invention chronicled in the New York *Commercial Bulletin* "a revolution in cotton ginning" is predicted. The inventor is a Mr. Brosius, of Atlanta. The new process is said to turn out an unbroken and silky staple from upland cotton, rivalling that from sea islands, and worth from 1c. to 2c. a pound more than that treated in the ordinary way. Not only is the breaking of the fibre prevented, but the seed is thoroughly stripped, which, it is claimed, will reduce the cost of getting out the oil.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, MAY 2ND.

The prospects offered to those desirous of embarking in the American carpet industry are not rosy. Notwithstanding the immense and still growing consumption in the home market, production has grown in a greater ratio, and on various occasions during the past few months suggestions have been made with a view to the curtailment of production, as has been mentioned in *The Textile Mercury* from time to time. One of the numerous English syndicates, with whose attentions the country has been favoured during the past few years, has been enquiring into the question of taking up some of our Philadelphia mills, but the result of enquiries made has not been satisfactory. Three firms were approached, and an offer was made to purchase their respective businesses with the view of operating them through the medium of a joint stock company. Accordingly accounts were drawn up shewing the cost of the goods produced with selling prices. The result was not considered satisfactory by the promoters, and the capitalists interested decided to abandon the project on the ground that the most favourable presentation of the possible profits would not produce anything like a satisfactory percentage. Only one of the firms referred to, according to current report, could shew a favourable balance as the result of the year's working. *Verb. sap. sat.*

Some of our leading jobbing houses have been called upon during the week by the repre-

sentative of *The Textile Mercury*, with the view of extracting some information as to the course of the local dry goods business during the year. Cheviots, stripes, and plaids have been favourites during the season, the fabrics being in demand both for dress goods and suitings. As in Manchester, Glasgow, and London, New York has found that current taste runs very largely on bengalines. The probable course of the demand for silk goods, as foretold some time ago in your columns, has therefore proved correct.

The following buyers have left for Liverpool:—F. Cowan (Arnold Constable and Co.), E. J. Geer and G. V. Cartwright (W. G. Hitchcock and Co.), J. P. Farrand (E. S. Jaffrey and Co.), and L. Turner (Dunham, Buckley and Co.). Many others have also sailed, amongst them being a considerable number who proceed direct to Havre, Hamburg, or Antwerp. The Continental lines are now transacting a much larger passenger business than formerly, Liverpool's monopoly having been broken. London is quite out of the hunt.

At the annual meeting of the New England Cotton Manufacturers' Association at Boston, on Wednesday, Mr. W. F. Draper read a paper on the "History of Spindles." Mr. Edward Atkinson also advocated at considerable length the claims of operatives to liberal feeding. The well-fed worker, he said, was of much more service to his employer than the underfed operative; and in support of this he mentioned the case of a well-known English contractor, who stated that the well-fed British navy, at higher wages, was worth more to him than the cheap underfed labour of other European countries and of India.

It has become necessary to remind bigoted protectionists of late that one obvious effect of the McKinley Bill has been to encourage the importation of cheap labour from the continent of Europe, and of dearer labour from England itself. The logical result of this is to cut down the wages of the American workingman. Replying to this, Mr. Halstead, one of the most prominent Republican journalists of the country, an ex-editor of the famous *Cincinnati Commercial*, and now one of the leading spirits in connection with the *Brooklyn Standard-Union*, says, in the course of a recent editorial utterance:—

That is not the way it looks to us. We can produce certain articles in this country quite as well as in Europe, but we have to provide higher wages for the workmen, and it takes a system of protection to do that. When the European workmen come to our shores they do not cut down our men, but are themselves elevated.

The coal and coke miners of Pennsylvania, who are now fighting against terrific odds for better wages, so that they may be able to keep body and soul together, do not agree with Mr. Halstead. I am not a rabid free-trader by any means, nor am I one of those who look upon the lot of the English worker as the *ne plus ultra* of human desire. But it disgusts me, as it disgusts most thinking Americans, to hear so much of the superior condition of the American lower classes as compared with those of Great Britain. The mistake that most here make is in confounding England and Scotland with France, Germany, Austria and other neighbouring countries in relation to wage earnings. And the fact, too, is forgotten or ignored that wages in free-trade England are higher than those paid in protectionist Germany, and that the wages in the unprotected industries in this country are relatively much higher than the wages in those which enjoy tariff bounties.

We are being afflicted by an extraordinary influx of Russian Jews, who are arriving at the rate of from 5,000 to 10,000 per month. The country does not require them, but still they come. Their presence accounts for the existence here of the sweating evil, and for many of the worst features of our city life.

It is reported from Glarus that on April 28th the weaving-factory at Engi in the Sernfthal, containing 130 looms, was burned down.

THE weaving-factory of Julius Busch in Königin-hof has been completely destroyed by fire. The insurance-value is estimated at 160,000 florins.

Letters from our Readers.

The Editor does not necessarily endorse the opinions of his correspondents.

MR. W. S. CAINE ON INDIAN FACTORY LEGISLATION.

(To the Editor of *The Textile Mercury*.)

SIR,—With reference to the letter of Mr. Caine's, which appeared in your issue of the 2nd inst., in which he states that "the operatives greatly prefer to have the mills open from sunrise to sunset, and to do their work during a long stretch of time, and in their usual drawing fashion," I would beg leave to quote the evidence below, taken from the recent Report of the India Factory Commission, which directly conflicts with the statement made by Mr. Caine.

The following are the answers of each male witness over the age of 14 years, employed on piece-work in Bombay cotton mills, who was examined before the Commission, in answer to the question, "Do you know that the male operatives wish that the mill should work for certain limited hours every day?"—

No. 1 replied: "Yes, the operatives wish that the working days be fixed from 6 a.m. to 6 p.m."

No. 2 replied: "Yes, they want them curtailed from 6-30 to 6-30."

No. 3 replied: "Yes, the mills should work from 6-30 to 6 p.m."

No. 4 replied: "Yes, the mills ought to be opened and closed by regulation from 6-30 to 5-30."

No. 5 replied: "He does not understand."

No. 6 replied: "They should start the mill at 6-30 and close at 5-30."

No. 7 replied: "His mill begins at 6 and stops at 6, and he likes this. In summer one hour longer."

No. 8 replied: "He would like fixed hours of work. Says they should begin at 6-30 and stop at 6."

No. 9 replied: "Yes, it is necessary to have fixed hours, say from 7 to 5-30, all the year round."

No. 10 replied: "It would be better to have fixed hours."

No. 11 replied: "He would like to have the hours from 6 a.m. to 5-30 p.m."

This evidence is surely conclusive, but to still further strengthen the proof, I give the answer of the same operatives to the question: "If the hours of work are limited to, say, between six and six all the year round, could you by working with more industry, earn the same wages as you are doing now?"

No. 1 replied: "Yes, I will do the same amount of work."

No. 2 replied: "Yes, a piece-worker would. He will pay more attention and work with greater industry. The machinery need not work faster."

No. 3 replied: "Yes, certainly."

No. 4 replied: "They will earn the same as they now earn by exerting themselves more, and will not want the engine to move faster."

No. 5 replied: "If the hours are limited, he will work with energy and give the same amount of work."

No. 6 replied: "Yes, he will do the same work and earn the same wages."

No. 7 replied: "Yes."

No. 8 replied: "Yes, he thinks he can do the same work."

No. 9 replied: "Yes, he says he could."

No. 10 replied: "Yes, they could."

No. 11 replied: "If the time is limited by Government from 6 a.m. to 6 p.m., this will be convenient, and they will work with energy."

Mr. Caine has only been in India twice, for two or three weeks, and, I believe, does not understand the language of the operatives; if this is the case, he must have obtained his information through the English-speaking owners and managers of the mills, which being the evidence of parties interested in overworking the operatives, would not be at all trustworthy. I am not aware that he visited any mills outside Bombay, and his "careful perusal of the evidence given before the enquiry" must have been succeeded by total forgetfulness, as is evidenced by the above quotations culled from the Report.—I am, Sir, your obedient servant,

HOLT S. HALLETT.

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May 9th.